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APPRECIATION OF GOLD.

In the following pages, I attempt to present briefly the practical outcome of certain somewhat technical investigations which I have lately made concerning variations in the value of money.* The main question upon which these inquiries are designed to throw light is, whether and to what extent gold has been appreciated in recent years. The answer turns upon two preliminary discussions. (*a*) What is the meaning of appreciation of gold? (*b*) How is it to be ascertained?

(*a*) There is reason to think that many of the disputes on this subject are due to the use of the same term in different senses. As it has been happily said of metaphysicians misunderstanding each other, one party makes a good stroke at billiards, and thinks he scores off the other, who is all the time playing chess.

We shall get a simple answer to the question, What is meant by a rise or fall in general prices? if we ask the plain man or the woman concerned more with domestic than political economy. For such a one, a rise of prices means that money does not go so far in the way of purchasing the luxuries, conveniences, and necessaries of life. Let us suppose that the average consumption for a whole nation or the largest class of it is capable of being ascertained, and remains pretty constant from year to year (as statistical researches like those of Dr. Engel prove). Then we may define variation in the value of money as the change in the pecuniary value of the na-

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*See my "Memorandum on the Methods of ascertaining Variations in the Value of the Monetary Standard" in the *Report of the British Association* for 1887, and a paper on the same subject in the *Journal of the Statistical Society* for June, 1888.

tional consumption per head, the average kit and rations, so to speak.

This is not the only sense in which economists have used our term. There are two other definitions which it is difficult to disentangle, owing to the circumstance that in the instances generally given in the text-books exemplifying what may be called the abstract typical case where the "quantity theory" applies, the denotation is the same for all three conceptions. But, in dealing with concrete facts, very serious confusion may arise from a failing to demarcate these meanings.

Cournot, the most clear-headed of writers, was perhaps the first who perfectly distinguished the power of purchasing in the sense above indicated from a variation of prices in a more objective sense.* He illustrated the latter species of variation by the analogy of the apparent movement of the stars, due to the yearly motion of the earth round the sun. A better illustration would be the apparent motion of the stars, due to the movement of the solar system in space. For, besides the general drift of the stars in one direction, due to the solar system rushing through space (in an opposite direction), there are "proper disturbances," due to the movement of particular stars or clusters of stars, independent of or superposed on the apparent general movement of the heavenly host.

These astronomical similes render clear in what sense we are to envisage the variation of general prices. From this point of view, we have nothing to do with the importance to the consumer of different articles, any more than we take into account the size of the different stars in determining the relative motion of the solar system. We are to find the average price variation, just as we find the height of the average man without taking

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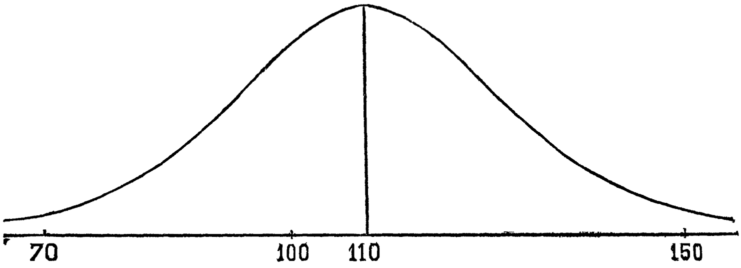
*See chap. ii. of the *Principes* (1838) and the corresponding passage in the later redaction (1863).

account of the weight avoirdupois, or the importance to society of the individual man. We should proceed just as anthropometers do in ascertaining the mean stature of a nation. In that case, we need not have *a priori* any theory about heredity or other cause why one nation or class is taller than another. What is ascertained is that, say, the mean height of Englishmen is sixty-seven and a half inches, of Italians sixty-two. So here we need not import into the facts any monetary theory. What is to be demonstrated by the statistician is whether, as a mere fact, prices on an average have risen or fallen.

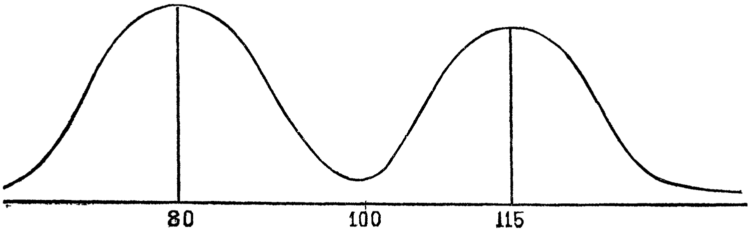
The only supposition which the inquiry postulates is that the particular prices should comport themselves in much the same way in respect to their "proper disturbances" that stars or human heights do; that is to say, the whole set of statistics should present a general resemblance to the annexed type. The annexed diagram represents in its first intention the various heights of the men in a nation, grouped about their mean value. The abscissa represents height in inches, the ordinate the corresponding number of men enjoying that height. The reader must imagine the proper figures to be filled in. The numerals in the diagram relate to some secondary applications of the figure.



Suppose we wanted to ascertain the mean increase per cent. in the weight of men between two ages. If we found an individual to have increased in weight during that period of life from ten stone to eleven stone, we might say he had increased ten per cent., from 100 to 110. Let us register the percentage increase of a numerous assortment of men. Then the diagram might represent the sort of statistics thus obtained. The ratio of increase most frequent would be 110. Many, however, would not have increased at all; some, as happens at an advanced age, would have actually declined in bulk; others would have put on flesh in extraordinary quantities. The mean percentage growth would be 110.

The same figure may be used to represent the dispersion of prices. Suppose beef has risen from 1*s.* to 1*s.* 3*d.*,—that is, 25 per cent.: then we may designate that change as a rise from 100 to 125. Similarly, we may suppose all the prices to start at 100, and to gain or lose a percentage. Conceive, then, that all the prices are, so to speak, placed initially at the point on the abscissa marked 100. In the interval of time under consideration there will occur a dispersion of percentages such as the figure represents. A large proportion of prices will have risen from 100 to 110; supposing, as in the case examined by Jevons, that there was a mean rise of 110. A smaller number may remain unchanged at 100. A smaller number will sink to 80, a number still smaller to 70. So, also, it is only in rare instances that prices will rise very high above the mean variation 110, say to 140 and higher.

Well, then, it must be postulated for the present purpose that this sort of arrangement is fulfilled by our statistics of prices approximately, at least, and hypothetically. The dispersion of prices must not correspond to the annexed figure, one large class rising together up to



115, while another and compact cluster falls to 80. In this case, the mean value — it may be 97½ — does not, as in the former case, correspond to anything worth measuring. We may say that one category has risen to 115, another fallen to 80, but we cannot usefully measure in the sense just explained the *general* variation of prices.

In this abnormal case there becomes visible a *third* definition of appreciation (and its converse), which, under ordinary circumstances, is apt to be undistinguishable. It is thus that during the eclipse of the sun we are able to distinguish bodies in its proximity which, ordinarily, are lost in its effulgence.

To fix the ideas, let us leave out of sight the sale of services, and let us employ the useful conception lately introduced by Sir Rawson Rawson of "an average ton of commodity," — all kinds of commodities, whether ready for consumption or of the nature of tools and materials. Suppose, then, the average ton of commodity sold per year consists of a hundred weight of coals, a hundred weight of iron, so many pounds of indigo, and it may be ounces or grains of nutmeg. Now, if the prices for one moiety of this set go up *en bloc* and for the other go down, we are agreed that it is not significant to speak of a mean price. The statistics of price *per se* and in the absence of some hypothesis do not present any unique *type*. For instance, if we did not know but what all the prices related to credit transactions, then I think the mean of two such discrete clusters would have no significance, would be what the Germans call an *Unding*. But let it be granted that the ton of mixed commodity is moved by metallic currency, then we may regard as measurable the increase or decrease in the quantity of gold which goes to a ton of commodity moved by gold, which, in the phrase of Petty, is required to "drive" that portion of trade. Thus, then, we reach the third definition of variation of prices,— namely, variation in the quantity of metallic currency relative to the work it has to do; that is, to the volume of transactions effected by payments in hard cash.

This conception will be found implicit in much that is written on the subject. For instance, Mr. Forsell and others speak of attaching importance to the respective price returns, when combining them to form a measure of the mean variation, according to the degree in which some transactions "absorb" more currency than others. I am fortunate in being able to complete the definition of this conception by quoting from one who never fails to impart clearness to any subject which he discusses,— Professor H. S. Foxwell. Writing to me with reference to the work of the committee appointed by the British Association to consider methods of ascertaining variations in the value of money, he thus expresses himself: —

> I consider that the degree in which a commodity is the subject of speculative dealing would have to be taken account of in the construction of a tabular standard. . . . I presume the intention in allowing for the bulk of a commodity and the number of sales, or, in other words, for the *amount of sales* in a commodity, is to measure the extent to which the commodity figures as constituting a demand for money. . . . My point is that, in the case of a speculative commodity, variation in the amount of sales does not necessarily mean any variation, certainly not any corresponding variation in the demand for money.

Two shades of the conception here defined may be distinguished according as the area over which we estimate the amount of gold relative to its work extends over the whole plexus of countries in monetary communication — the *Münzgebiet*, as the Germans say — or is limited by a frontier permeable to the precious metal. The former is, I think, the more appropriate conception. The variation in the amount of gold thus defined corresponds to the ratio in which the quantity of precious metals would have to be increased in order to restore the level of prices to a *statu quo*, so far as it may be the duty of government to attempt such restoration; that is, so far as the disturbance has been due to the deficiency of the currency in relation to the work which it has to do. But the variation in the quantity of gold in relation to its work for any particular country, for any one creek of the monetary lake-system, does not, I think, equally form the answer to any conceivably practical question. This latter conception has hardly, I think, a substantive reality, though it may have a certain use as an adjunct to our *second* method of ascertaining appreciation or depreciation. It is thus that I understand Mr. Giffen in his classical paper on Depreciation to make use of the ratio between the volume of transactions and the quantity of gold in England.* The *quæsitum* in Mr. Giffen's investigation I take to be a mean variation in some such sense as our *second*. He determines the depreciation in this sense: First, directly by actually taking the average variation of a large number of miscellaneous prices. Then, by way of verification or collateral proof for that *quæsitum*, he estimates the change in the ratio between the metallic currency in England and the work it has to do. I doubt if he would have concerned himself about his second operation if the first had proved utterly nugatory owing to the statistical abnormality, the two-headed development of the price-curve which I have noticed above.

To sum up the results of this initial discussion: We have seen that there are at least three different definitions of appreciation and its converse, distinct in idea and connotation, though apt to be coincident in fact. The first may be described as subjective, being grounded on the relation of prices to certain human wants, such as the requirements of the consumer. The second *quæsitum* is a mere average,— a type which gathers the statistical phenomena into an ideal unity without reference to any special use or particular hypothesis. The chief use contemplated is the general purposes of scientific inquiry, the sort of use to which the analogous measurement of mean stature is put by statisticians, when they conclude, like Mr. Galton, by a comparison of averages, that certain trades or localities are unfavorable to the development of the human body. Thirdly, we may regard price variation as the expression and measure of a real objective thing; namely, the change in the quantity of metallic currency per ton (or other unit) of commodity paid for in hard cash. If we call the third definition as distinguished from the first objective, we may regard the second as semi-objective or typical.

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* *Essays in Finance*, Series I.

(*b*) We have next to consider how to ascertain appreciation. This has been already in part effected. For, in defining what it is we seek, we have indicated where to look for it. "The beginning is half the whole" in this sense. Nor are we concerned with the whole investigation here. It is proposed to point out only the general line or rather lines of inquiry, not the tortuous technicalities of each path. Speaking generally, then, we may say that our problem is to combine price-variations given as percentages into a mean or so-called index number, and that the rules required are mainly of two kinds,—prescribing what prices, if any, are to be altogether omitted from the combination, and what relative importance is to be assigned to each of those which are to enter into the average. The rules on these points differ according to the different definitions of the *quæsitum*.

(1) For the first sort of average, the subjective mean above described, we are to take account only of commodities adapted for immediate consumption, omitting goods which are useful only as means, not ends. Thus we shall include Anchovies, Beef, etc., but not Alkali, etc. The importance assigned to each price will be pro-

portioned to the amount consumed of the corresponding article. Thus the required combination will be of the following type,—

$$\frac{\left[\begin{matrix}\text{Anchovies, quantity consumed}\\ \text{per annum,}\end{matrix}\right\}\times\left\{\begin{matrix}\text{Present}\\ \text{price of}\\ \text{anchovies,}\end{matrix}\right]+\left[\begin{matrix}\text{Beef, quantity}\\ \text{consumed per}\\ \text{annum,}\end{matrix}\right\}\times\left\{\begin{matrix}\text{Present}\\ \text{price of}\\ \text{beef,}\end{matrix}\right]+\text{\&c.}}{\left[\begin{matrix}\text{Anchovies, quantity consumed}\\ \text{per annum,}\end{matrix}\right\}\times\left\{\begin{matrix}\text{Original}\\ \text{price of}\\ \text{anchovies,}\end{matrix}\right]+\left[\begin{matrix}\text{Beef, quantity}\\ \text{consumed per}\\ \text{annum,}\end{matrix}\right\}\times\left\{\begin{matrix}\text{Original}\\ \text{price of}\\ \text{beef,}\end{matrix}\right]+\text{\&c.}}$$

where the original price of Beef designates the price at that initial epoch between which and the present time a comparison is indicated. In a first approximation, it may be assumed that the quantities remain constant from year to year, as, in fact, is pretty nearly true. We are not here concerned with the technical devices by which greater precision is attainable. Suffice it to say that any error committed in assigning a wrong weight to one price, say Anchovies, is apt to be compensated by the independent fortuitous error incurred in treating another article, it may be Beef.

(2) For the purpose of a mere average or type, we are to take account of all manner of goods, and we are not concerned with the quantity of each commodity. We have for this purpose only to ascertain the ratios or percentages, such as

$$\frac{\text{Present Price of Anchovies}}{\text{Original Price of Anchovies}};\quad\frac{\text{Present Price of Alkali}}{\text{Original Price of Alkali}};\quad\frac{\text{Present Price of Beef}}{\text{Original Price of Beef}}\ \text{\&c.,}$$

and then to take a simple or unweighted mean of these ratios: that is a mode of combination which is symmetrical with respect to all these elements, not assigning more weight or importance to one price than another. The common arithmetical mean is the simplest and most familiar form of this sort of combination. But for certain technical reasons, which it is beyond the scope of this paper to enter into, the arithmetical mean is not so suited to the statistics of prices as the geometric mean employed by Jevons, or a certain other species of mean commonly called the median. But, whatever genus of average is adopted, the simple or *unweighted* species thereof is appropriate to the aspect of the problem now under consideration.

This rule will excite the mirth of some. What, they will exclaim, assign the same importance to pepper and nutmeg as cotton and iron! Yes, I reply, for the present purpose, just as in ascertaining the (variation of the) rainfall of a district by an examination of several rain-gauges placed in a variety of suitable spots, I would not, in combining their results, assign more weight to the larger receptacles. The size of a vessel is, with reference to its use as a cistern, an all-important circumstance, but for the purpose of a rain-gauge comparatively indifferent. The reason of the objector's surprise is that he has never cleared his ideas as to what it is he seeks. He wants a cistern, while I am arranging for a rain-gauge. I make a break at billiards, and he calls out, "Check!"

However, it may be admitted that, though there is no peculiar propriety in using a *weighted* mean for the present purpose, at the same time there is not much harm in doing so. If a true average (in the sense above explained) exists, then it is not likely that much difference in the result will be produced by "weighting" each of our price variations according to the quantities of the corresponding article.* Moreover, in this way we may best attain what may seem to be the object of some,— a sort of compromise mode of measurement, or jack-of-all-trades index number, adapted as well as may be to the fulfilment of purposes which, in a more perfect division of labor, should be pursued separately. For these reasons there is not much objection to modifying our second formula by taking account of quantities.* Then each ratio of the form

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* On this point, see my "Memorandum on the Accuracy of Index Numbers," prepared for the British Association, 1888.

$$\frac{\begin{matrix}\text{Present Price of}\\ \text{Anchovies}\end{matrix}}{\begin{matrix}\text{Original Price of}\\ \text{Anchovies}\end{matrix}}, \qquad \frac{\begin{matrix}\text{Present Price}\\ \text{of Alkali}\end{matrix}}{\begin{matrix}\text{Original Price}\\ \text{of Alkali,}\end{matrix}} \text{ \&c },$$

is to be weighted by some such factor as,—

$$\left\{\begin{matrix}\text{Total Value of Anchovies}\\ \text{consumed per annum at}\\ \text{Original Price,}\end{matrix}\right\} \qquad \left\{\begin{matrix}\text{Total Value of Alkali}\\ \text{consumed per annum}\\ \text{at Original Price,}\end{matrix}\right\} \text{ \&c}$$

If we use the most familiar mode of combination of the sort called arithmetical, we shall thus obtain a formula similar to our first, except that here all manner of articles enter in,—Alkali as well as Anchovies.

(3) The same formula will serve as a first approximation to the third form of index number. In other words, if the composite "average ton" above described consists of, say, two hundred-weight of coal, one hundred-weight of cotton, one pound, or .0005 hundred-weight, of *pepper*, then the index number is of the form,—

$$\frac{\left[2 \times \left\{\begin{matrix}\text{Present Price}\\ \text{of Coal,}\end{matrix}\right.\right] + \left[1 \times \left\{\begin{matrix}\text{Present Price}\\ \text{of Cotton,}\end{matrix}\right.\right] + \text{\&c} + \left[0005 \times \left\{\begin{matrix}\text{Present Price}\\ \text{of Pepper}\end{matrix}\right.\right]}{\left[2 \times \left\{\begin{matrix}\text{Original Price}\\ \text{of Coal,}\end{matrix}\right.\right] + \left[1 \times \left\{\begin{matrix}\text{Original Price}\\ \text{of Cotton,}\end{matrix}\right.\right] + \text{\&c} + \left[0005 \times \left\{\begin{matrix}\text{Original Price}\\ \text{of Pepper}\end{matrix}\right.\right]}$$

that is, supposing that the amount of currency required to "drive" (in Petty's phrase) a pound of coal or cotton is the same as the amount required by a pound of pepper, and supposing also a number of "other things" at the two epochs compared to remain the same.

For a second approximation, we ought to take account that the "demand for money" in the sense defined by the extract above cited † is not, as pointed out by Professor Foxwell, simply proportional to the "amount of sales" in the commodity. Thus it is proper to affect each of the elements in the last written formula with a factor or coefficient corresponding to the demand on the currency as varying with the *quality* of different articles. Thus *cotton*, owing to the speculative character of transactions in it, may require per pound of commodity less currency to drive the trade than, say, *pepper*. No doubt such corrections would be individually very inexact. But, owing to the compensation of errors which I have already alluded to as coming into play in such formulæ, the total result would have great claim to accuracy but for an imperfection of which the full importance has not, I think, been recognized.

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* Compare the Second Report (drawn up by Mr. Giffen) of the Committee appointed by the British Association to ascertain the best method of measuring variations in the value of the monetary standard. *Report of British Association*, 1888.

† See p. 158.

In our first and second approximations, we have taken for granted that "other things" remain the same at the compared epochs: in particular, the proportion of credit to hard cash transactions and the rapidity of currency. Now, in so far as these coefficients vary for different articles, these variations might be ignored on the principle of compensation. And it is possible also to get rid of what are called the "periodical" ups and downs of credit by taking an average over a long period. We might, for instance, compare the average prices for the period 1875–85 with those for 1865–75. But we cannot thus get rid of the *secular* variation in the relation between credit and cash transactions, of changes in what has been happily called the organization of credit. The same remark applies to the progressive variations in the rapidity of currency, which there is reason to believe are taking place. Moreover, these changes affecting industry as *a whole* are not subject to that law of compensation which has enabled us to wink at errors in the *parts* of our computation. In fact, in virtue of these secular changes, our result is affected by factors which, in the present state of science, I venture to regard as purely conjectural.

I speak of the attempt to assign in the *a priori* method described the relation between gold and the work of transfer it has to do for the whole system of countries in monetary combination. No doubt for a particular country we may, with more confidence, assign a value to the unknown factors. Thus Mr. Giffen postulated that the relation of credit to cash transactions in the United Kingdom had not much altered in the period under his review. His assumption has been doubted by high authorities; * but, at any rate, it is of a sort which could not with safety be extended to the *Münzgebiet.*

I conclude therefore that the method which leads to our *quæsitum* is completely blocked by statistical difficulties. I mean the direct path proper to this scope. For, of course, if a true average in our second sense, a typical variation of prices is, and is ascertainable, we may deduce from the reasoning proper to the *second* method a conclusion admissible of the third *quæsitum.* If it is true that all prices on an average have decreased by, say, ten per cent., then it is sure to be true that the price of an "average ton" has decreased by about the same percentage. Accordingly, it may easily be deduced if we mentally abstract from the great volume of transactions that sphere thereof which is permeated by pure gold. It will be approximately true that to every composite ton within that sphere there goes ten per cent. less gold now than originally.

(*c*) After this preliminary discussion, we are now at length in a position to approach the main question, whether in recent times gold has been appreciated. From what has been said, the reader will be prepared to find the answer articulated, diversified according to the shades of meaning which may be attached to the question. In the subjective sense above defined, I think it is reasonably certain that there is at present — as compared, say, with 1867–77, Mr. Sauerbeck's initial period — a considerable appreciation; though it must be remembered that the level of prices which affects consumers is that of retail dealings, concerning which we have not accurate information. Much the same, I imagine, is true of the other civilized countries. So much will be admitted by many who yet deny that there has been a fall of prices in a more objective sense. The interest of the controversy concentrates about our second conception. For, as it has been shown, the third *quœsitum* does not lead in practice to any distinct method of investigation. On this question are we to side with Messrs. Forsell, Laughlin,* and Wells,† or with the bimetallists?

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* As by Mr. J. B. Martin, *Journal of the Institute of Bankers.*

I fear that I cannot give an unqualified assent to the advocates on either of the sides. On the one hand, many of the arguments used to prove that there has not been a fall in general prices appear to me altogether wide of the mark. To assert with Mr. Laughlin ‡ and others that, in order to prove a general fall, you must prove a fall in every article, is wholly to ignore the character of the investigation. The phenomenon under examination is of the nature of what Mill called a "residual phenomenon," like the difference in the mean height of the barometer between two hours of the day, the so-called "diurnal variation." On an average of many days there is found to be a fall, but it is not necessary nor true that every day, experience should present that phenomenon. The theory of probabilities is satisfied with a majority of days. The figure at p. 156 will put the matter in a clear light. It will be seen there that there is a mean rise of ten per cent.; though many items not only do not rise, but fall.

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* *Quarterly Journal of Economics*, April, 1887.

† *Contemporary Review*, 1887.

‡ *Quarterly Journal of Economics. Cf.* Mr. David Wells, *Contemporary Review*, November, 1887, p. 63.

The slightest acquaintance with the theory of errors of observation will show the justice of this conception.

The same illustration disposes of another objection. It seems to be taken for granted* that, when we can show a reason why each price should have varied in the direction actually observed, we are thereby debarred from inferring a general displacement due, in the phrase of Mill, to "causes that operate on all goods whatever."† But this assumption is quite erroneous. The meteorologist may be able to assign the reason why between morning and noon each particular day there has been a rise or fall of the barometer. But the mathematician is not thereby precluded from extricating by the theory of probabilities a mean variation between those hours.

At the same time, while so far siding with the bimetallist faction, I cannot agree that reasonings like those of Mr. David Wells in the *Contemporary* of October and November, 1887, are *nihil ad rem.* They go to prove that the variation of prices may be disposed in two distinct categories (like those above represented); namely, (1) where the cost of transport or other expenses of production have diminished, and (2) where this agency has not operated. The argument, properly interpreted, is good as to quality. The only question is whether it is efficacious as to quantity. This is a question of degree, for deciding which there are required the appropriate conceptions of the calculus of probabilities, informed by extensive practical knowledge. I cannot make any claim to the latter part of the condition. But, as a mere opinion, and by way of showing what sort of conclusion is attainable, I submit that the state of facts is probably capable of being represented in some such form as the annexed diagram.

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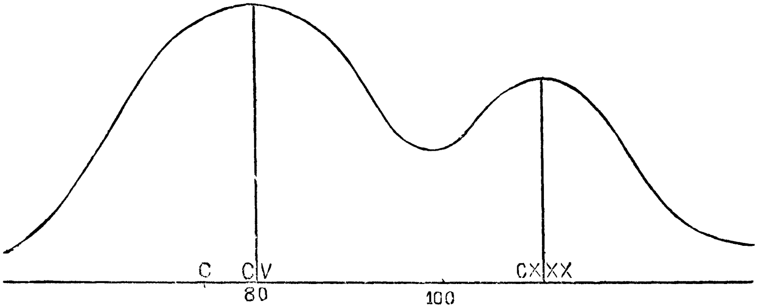
* *E.g.*, Mr. Wells, in his articles in the *Contemporary Review*, October and November, 1887.

† The reader will please observe the happy generality of Mill's language. Whether the common cause is on the side of gold or goods is not here our concern.



The main peak corresponds to a fairly general fall of twenty per cent. There are, however, certain categories of prices which exhibit no fall, but rather a rise; perhaps capable of being grouped into a distinguishable, but not altogether separate, type. Under such circumstances, it is a nice question for practical judgment whether we can at least hypothetically posit a unique type. That there are exceptional outlying categories, as the figure represents, is not a decisive objection to this hypothesis. For, if statisticians were extreme to mark such irregularities, it would be impossible to find anywhere *in rerum natura* types of the kind which Quetelet has made familiar. Take the ratio of male to female births, the phenomenon in concrete statistics which best complies with the ideal rules of the calculus of probabilities. Yet the distribution of these statistics, nearly viewed, would probably present a form somewhat like the above. Let the percentage of male over female births in any district be represented by the distance along the abscissa from the point *c*, corresponding to 100 female births, while the ordinates represent the number of districts presenting each ratio. Then the most frequent ratio would correspond to a peak about 104 or 105, marked as *cv* (100 being now indicated by *c*). But there might be a little peak higher up the scale,—rather smaller than in the figure,—corresponding to the category of *still*-born children, in which the proportion of males to females is far above 104 : 100, say 130 : 100 (corresponding to the point marked cxxx). Yet this irregularity does not prohibit us from speaking of the mean ratio of male to female births as 104 : 100 in England. Similarly, I am prepared to accept the statement that there has been an average decline of prices by so much per cent. Or, translating this statement into other terms (according to the reasoning above explained), I think it quite likely that throughout the civilized world there has been a decrease of money in relation to the work which it has to perform.

As to the cause of this phenomenon, I do not pretend to an important opinion. If, in the eternal race between gold and goods, gold seems at present to have fallen behind, I leave it to nicer observers to determine whether it is the gold which has been curbed or the goods which have been spurred, or whether and in what degree both agencies may have operated. The remedy of the disturbance which has occurred is a subject still further *ultra crepidam.*

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